

Micro Mercury Ion Clock (MMIC)

Completed Technology Project (2012 - 2013)



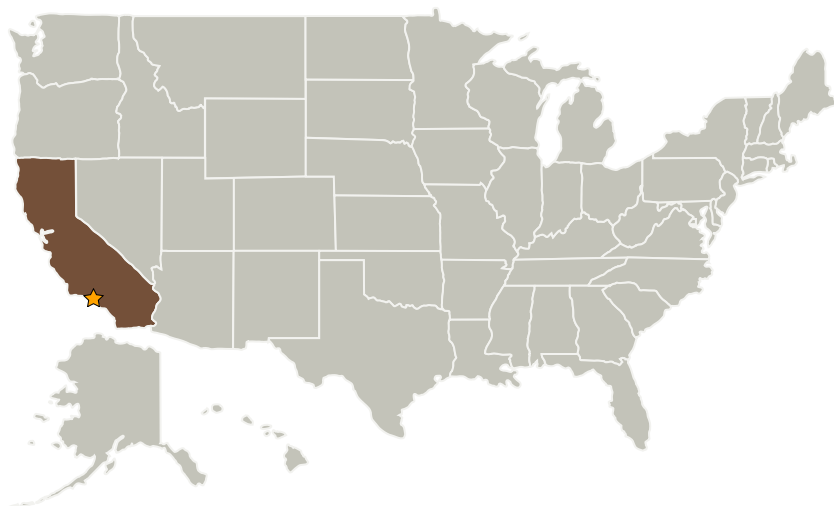
Project Introduction

Demonstrate micro clock based on trapped Hg ions with more than 10x size reduction and power; Fractional frequency stability at parts per 10¹⁴ level, adequate for all deep space 1-way navigation.

Anticipated Benefits

Maintain NASA's competence and leading role in frequency standard and clock development.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Jet Propulsion Laboratory (JPL)	Lead Organization	NASA Center	Pasadena, California

Primary U.S. Work Locations

California



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Center Innovation Fund: JPL CIF

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Project Management

Program Director:

Michael R Lapointe

Program Manager:

Fred Y Hadaegh

Project Manager:

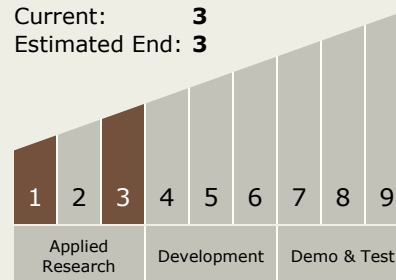
Jonas Zmuidzinass

Principal Investigator:

Nan Yu

Technology Maturity (TRL)

Start: **1**
Current: **3**
Estimated End: **3**



Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
 - └ TX05.4 Network Provided Position, Navigation, and Timing
 - └ TX05.4.1 Timekeeping and Time Distribution